AMENDMENTS TO THE CLAIMS

1. **(Currently amended)** A method for ~~potentiating~~ reducing inhibition of a morphogen activity in a neuron, comprising contacting the neuron with a composition, the composition comprising ~~a molecule which~~:

   ~~(a) is~~ a neuropoietic cytokine antagonist, a retinoid antagonist, or a cAMP-dependent messenger pathway inhibitor; ~~and~~

   ~~(b) overcomes~~ which reduces inhibition of the morphogen activity in the neuron *in vitro*;

   thereby ~~potentiating~~ increasing the morphogen activity, resulting in ~~a~~ the neuron's proliferation, growth, and maintenance of the differentiated state.

2. **(Currently amended)** A method for promoting neuronal cell growth, comprising contacting a neuron with a composition, the composition comprising ~~a molecule which~~:

   ~~(a) is~~ a neuropoietic cytokine antagonist, a retinoid antagonist, or a cAMP-dependent messenger pathway inhibitor; ~~and~~

   ~~(b)~~ which overcomes inhibition of growth-promoting effects of endogenous morphogens *in vitro*;

   thereby promoting neuronal cell growth.

3 - 4. **(Canceled)**

5. **(Previously presented)** The method of claim 1, wherein said morphogen activity is endogenous.

6. **(Previously presented)** The method of claim 1, wherein said morphogen activity is the result of an exogenously provided morphogen.

7. **(Previously presented)** The method of claim 2, wherein said composition further comprises a morphogen.

8. **(Previously presented)** The method of claim 1 or 2, wherein said neuron is injured by Alzheimer's disease, Parkinson's disease, Huntington's disease, senile dementia, alcohol-induced dementia, or stroke.

9 -10. **(Canceled)**

11. **(Previously presented)** The method of claim 1 or 2 , wherein said neuropoietic cytokine antagonist is an LIF (Leukemia-Inhibitory Factor) antagonist or a CNTF (Ciliary Neurotrophic Factor) antagonist.

12. **(Previously presented)** The method of claim 11, wherein said LIF (Leukemia-Inhibitory Factor) antagonist is a monoclonal antibody to a gp130 protein.

13 – 15. **(Canceled)**

16. **(Previously presented)** The method of claim 7, wherein said morphogen comprises an amino acid sequence selected from a sequence:

(a) having at least 70% homology with the C-terminal seven-cysteine skeleton of human OP-1 (Osteogenic Protein 1), residues 330-431 of SEQ ID NO: 2;
(b) having greater than 60% amino acid sequence identity with said C-terminal seven-cysteine skeleton of human OP-1;
(c) defined by Generic Sequence 7, SEQ ID NO: 4;
(d) defined by Generic Sequence 8, SEQ ID NO: 5;
(e) defined by Generic Sequence 9, SEQ ID NO: 6;
(f) defined by Generic Sequence 10, SEQ ID NO: 7; or
(g) defined by OPX, SEQ ID NO: 3.

17. **(Previously presented)** The method of claim 7, wherein said morphogen is human OP-1 (Osteogenic Protein 1), mouse OP-1, human OP-2 (Osteogenic Protein 2), mouse OP-2, 60A, GDF-1 (Growth/Differentiation Factor-1), BMP2A (Bone Morphogenesis Protein 2A), BMP2B (Bone Morphogenesis Protein 2B), DPP (Decapentaplegic), Vgl, Vgr-1 (Vg1-related sequence), BMP3 (Bone Morphogenesis Protein 3), BMP5 (Bone Morphogenesis Protein 5), or BMP6 (Bone Morphogenesis Protein 6).

18. **(Currently amended)** The method of claim 7, wherein said morphogen is OP-1 (Osteogenic Protein 1).

19. **(Previously presented)** The method of claim 1, wherein the neuropoietic cytokine antagonist binds an endogenous ligand for a cytokine receptor .

20 – 21. **(Canceled)**

22. **(Previously presented)** The method of claim 1 or 2, wherein the retinoid antagonist is a retinoic acid receptor or retinoid X receptor.

23 - 24. **(Canceled)**

25. **(Previously presented)** The method of claim 1, wherein said cAMP-dependent messenger pathway inhibitor comprises a protein kinase A inhibitor.

26. **(Previously presented)** The method of claim 25, wherein said protein kinase A inhibitor is (2-p-bromocynnamylaminoethyl)-5-isoquinolinesulfonamide, an enantiomer of dibutyryl cAMP, or an enantiomer of cAMP.

27 – 32. **(Canceled)**

33. **(Previously presented)** The method of claim 1, wherein the retinoid antagonist binds an endogenous ligand for a retinoid receptor.

34. **(Previously presented)** The method of claim 1, wherein said morphogen activity is activity to stimulate dendritic growth.

35. **(Currently amended)** The method of claim 1, wherein said morphogen activity is activity of OP-1 (Osteogenic Protein 1).

36. **(Previously presented)** The method of claim 2, wherein said neuronal cell growth is dendritic growth.

37. **(Previously presented)** The method of claim 1, 2, 34 or 36, wherein said neuron is a sympathetic neuron.

38. **(Currently amended)** The method of claim 11, wherein said CNTF (Ciliary Neurotrophic Factor) inhibitor is phosphatidylinositol-specific phospholipase C.

39. **(New)** A method for reducing inhibition of a morphogen activity in a neuron *in vitro*, comprising contacting the neuron with a composition, the composition comprising a component selected from:

> (i) a monoclonal antibody to a gp130 protein, (ii) phosphatidylinositol-specific phospholipase C (PI-PLC), (iii) a (2-p-bromocynnamylaminoethyl)-5-isoquinolinesulfonamide, (iv) an enantiomer of dibutyryl cAMP, or (v) an enantiomer of cAMP; which component reduces inhibition of the morphogen activity in a neuron *in vitro*;

thereby increasing the morphogen activity, resulting in the neuron's proliferation, growth, and maintenance of the differentiated state.

40. **(New)** A method of reducing dendritic retraction of a neuron induced by a neuropoietic cytokine *in vitro*, comprising contacting the neuron with a composition comprising a neuropoietic cytokine antagonist selected from the group consisting of a monoclonal antibody to a gp130 protein and phosphatidylinositol-specific phospholipase C (PI-PLC), which antagonist overcomes inhibition of morphogen activity *in vitro*, thereby reducing dendritic retraction.

41. **(New)** A method of reducing inhibition of OP-1 stimulated dendritic growth by a neuropoietic cytokine *in vitro*, comprising contacting a neuron with a composition comprising a neuropoietic cytokine antagonist selected from the group consisting of a monoclonal antibody to a gp130 protein and phosphatidylinositol-specific phospholipase C (PI-PLC), which antagonist overcomes inhibition of morphogen activity *in vitro*, thereby reducing the inhibition of OP-1 stimulated dendritic growth.